

Particles and State Changes

How does energy play a role in changes of state?

HEAT NRG CHANGES THE DISTANCE MOLECULES ARE APART - INCREASING POTENTIAL NRG & CHANGING STATE

Describe melting at the particle level.

PARTICLES ATTRACTIVE FORCES ARE BEING WEAKENED AND THEIR DISTANCE APART INCREASES SLIGHTLY

How does the strength of the forces between particles relate to the substances melting and boiling points?

M → WEAKING FORCES SLIGHTLY REQ LITTLE NRG

B → WEAKING THE FORCES TO BECOME NONEXISTENT REQ LOTS OF NRG

Describe boiling at the particle level.

PARTICLES ATTRACTIVE FORCES ARE BEING WEAKENED AND THEIR DISTANCE APART INCREASES BY A LOT

What is the difference between boiling and evaporation?

BOILING OCCURS ~~AT~~ THROUGHOUT A SUBSTANCE AND HAPPENS RAPIDLY - EVAPORATION OCCURS AT THE SURFACE AND TAKES A LONG TIME

What variables could you change in order to speed up the process of evaporation?

↓ SIZE OF SAMPLE

↑ TEMP

↑ SURFACE AREA / ↓ DEPTH

When heating water the temperature does not increase steadily, but has two places where the line flattens out. What is happening at these locations?

$\Delta PE / \Delta$ IN STATE

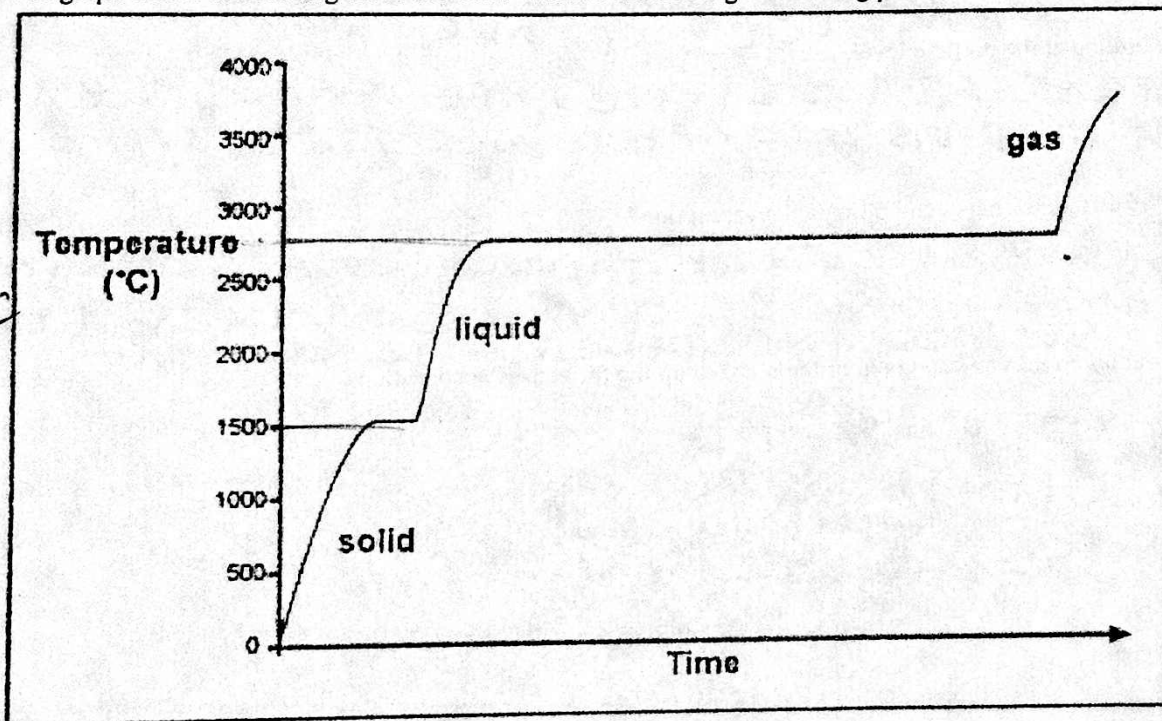
How is the energy going into the system (beaker with H_2O) affecting water molecules during the flat line portions of the graph?

IT IS SPREADING THEM APART

Starting at time = 0 and working your way up the line, what is significant about the first flat portion on the graph and the second flat portion of the graph?

IT IS THE PERIOD WHEN THE SOLID IS TURNING INTO A LIQUID

The graph below is a heating curve for iron. What is the melting and boiling points for iron?



Cooling Curve

What similarities and differences are there between a heating curve and a cooling curve?

HC & CC HAVE SAME TEMPS FOR P.C. BUT THE GRAPH GOES IN OPPOSITE DIRECTIONS
 HC \rightarrow NRG IS BEING ABSORBED
 CC \rightarrow NRG IS BEING RELEASED

